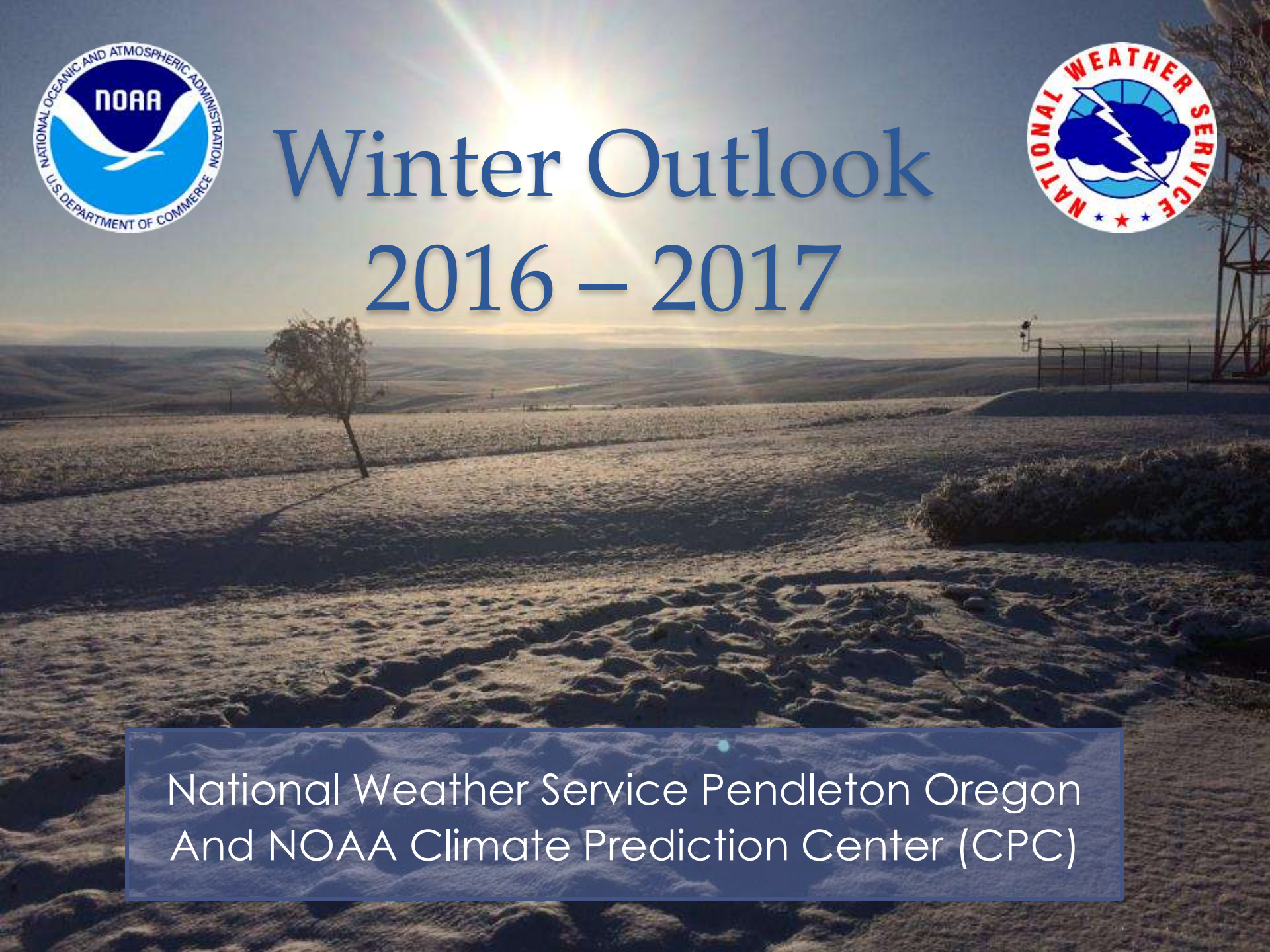
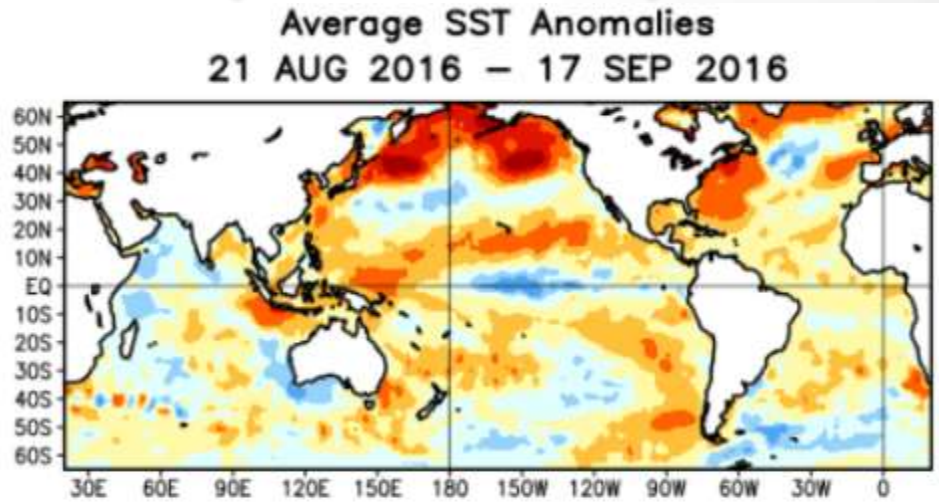


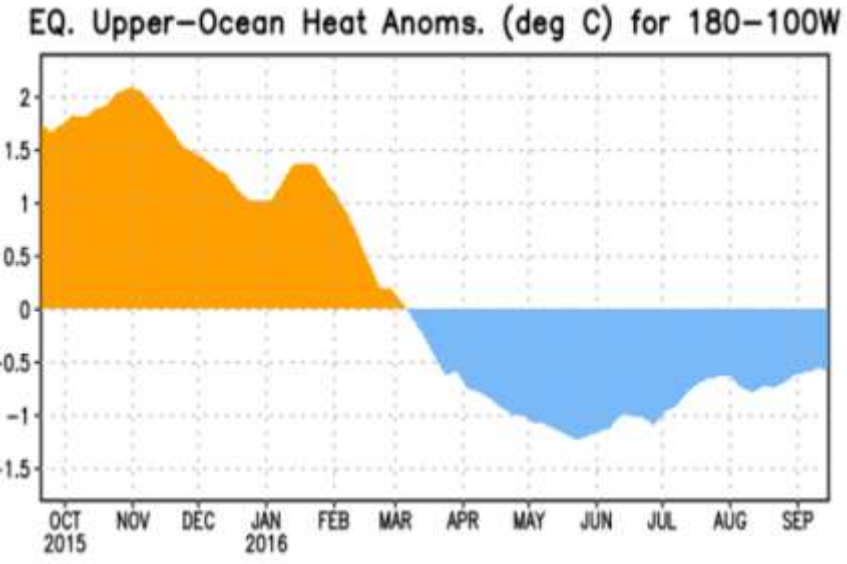
Winter Outlook 2016 – 2017

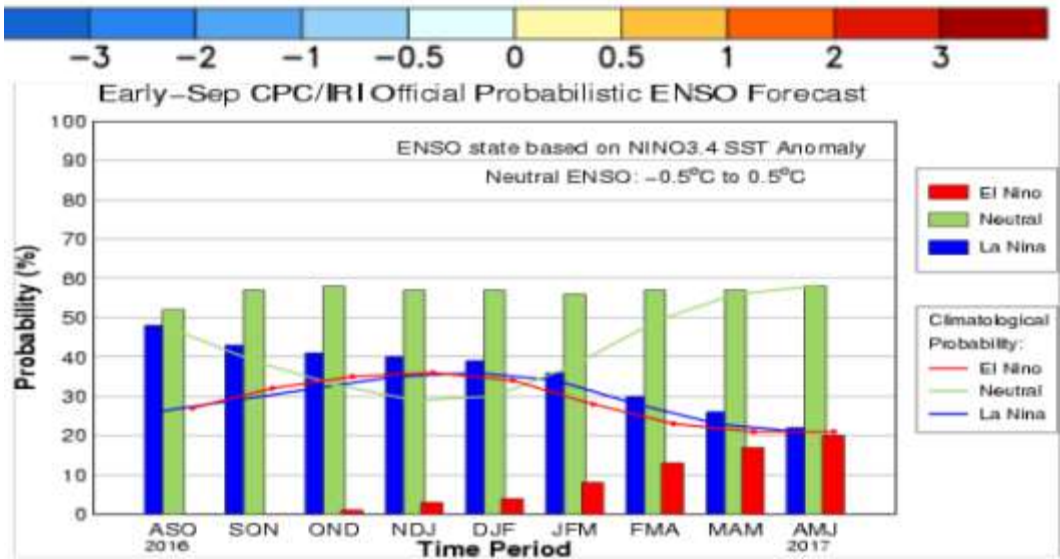
National Weather Service Pendleton Oregon
And NOAA Climate Prediction Center (CPC)

El Nino-Southern Oscillation (ENSO)

- ENSO-neutral conditions are present
- Equatorial sea surface temperatures (SST) are near or below average in the east-central & east Pacific Ocean
- ENSO-neutral conditions are slightly favored (55-60%) during the upcoming NH fall/winter 2016-17

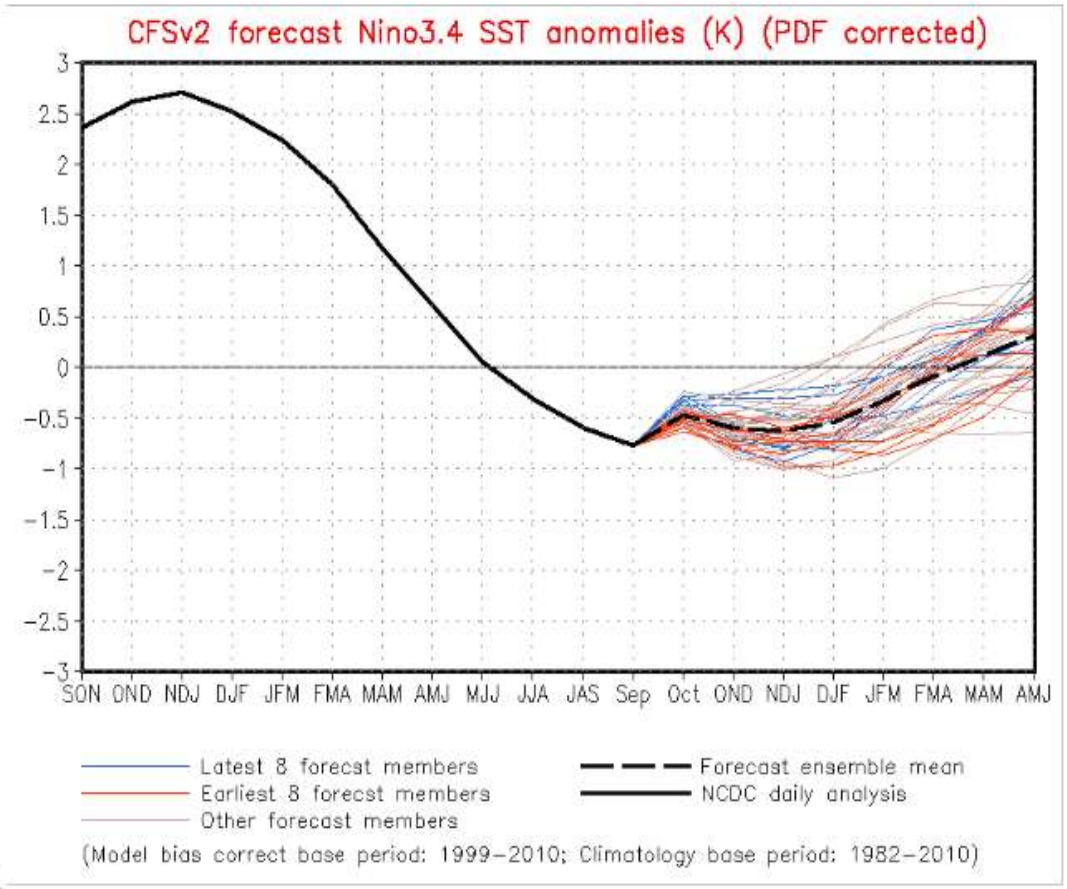


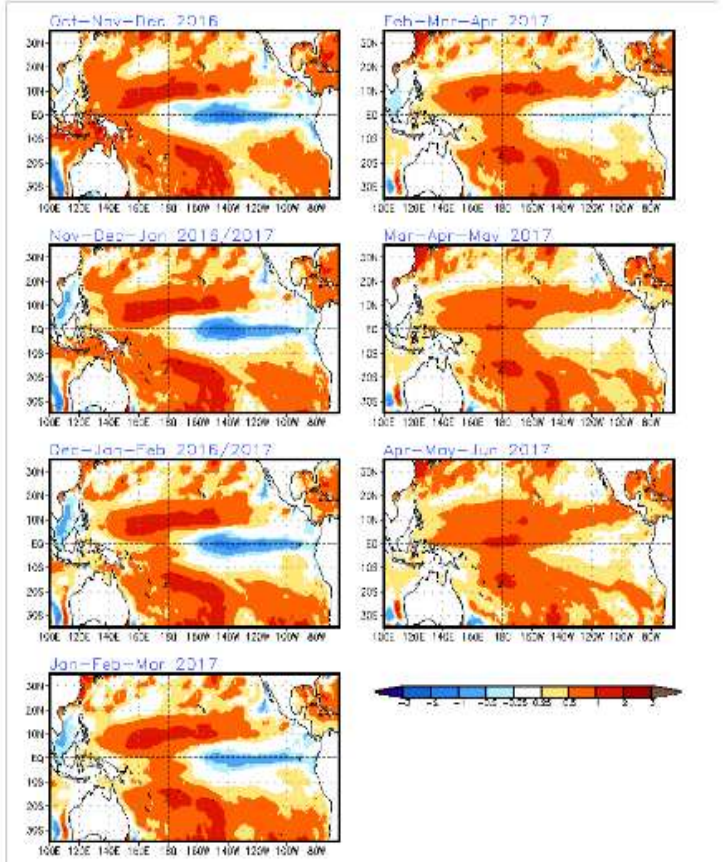




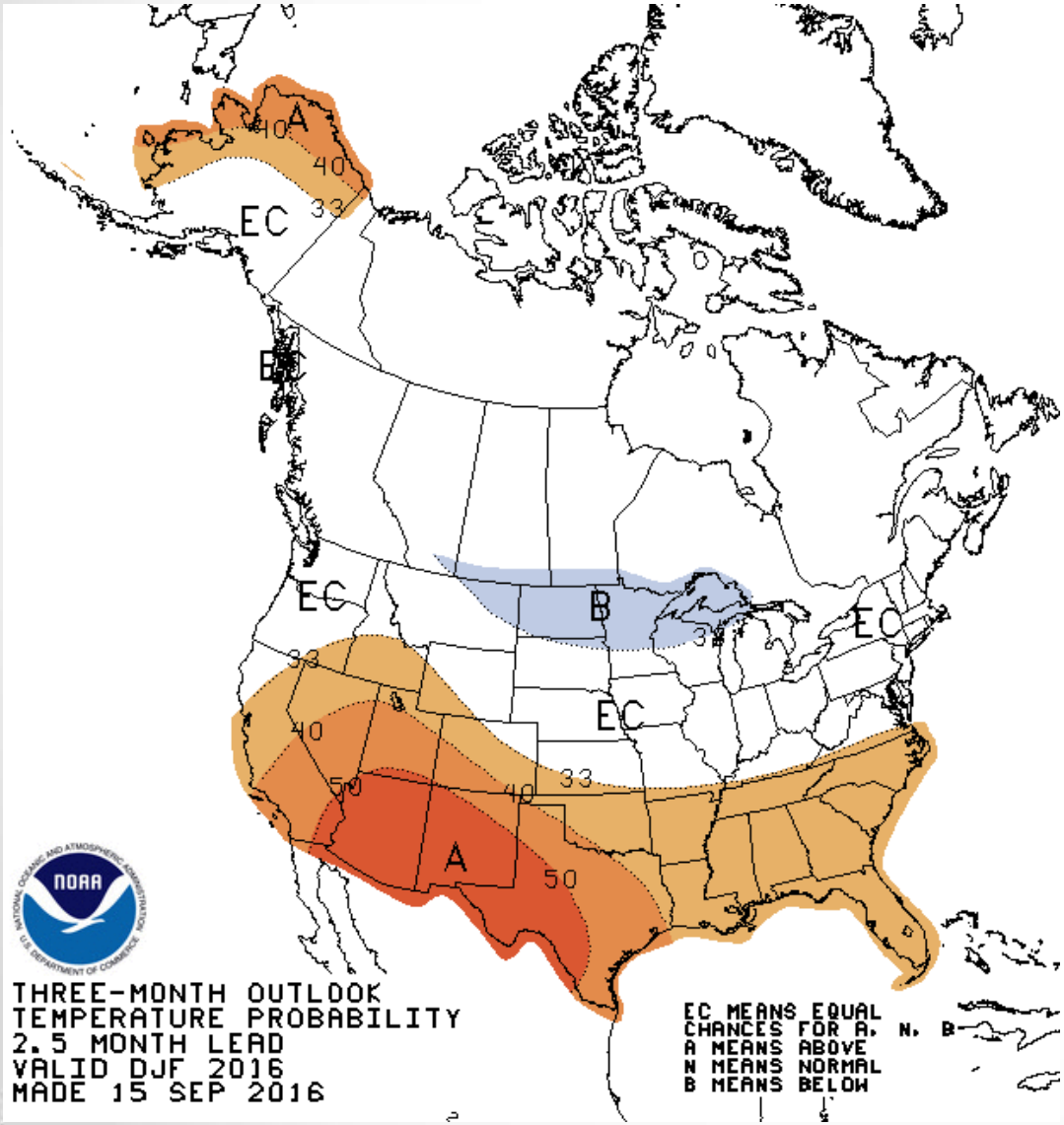
ENSO- Outlook (CFSV2)

The CFS.v2 ensemble mean (black dashed line) generally favors borderline ENSO-neutral/ La Niña during the Northern Hemisphere fall and winter 2016-17.



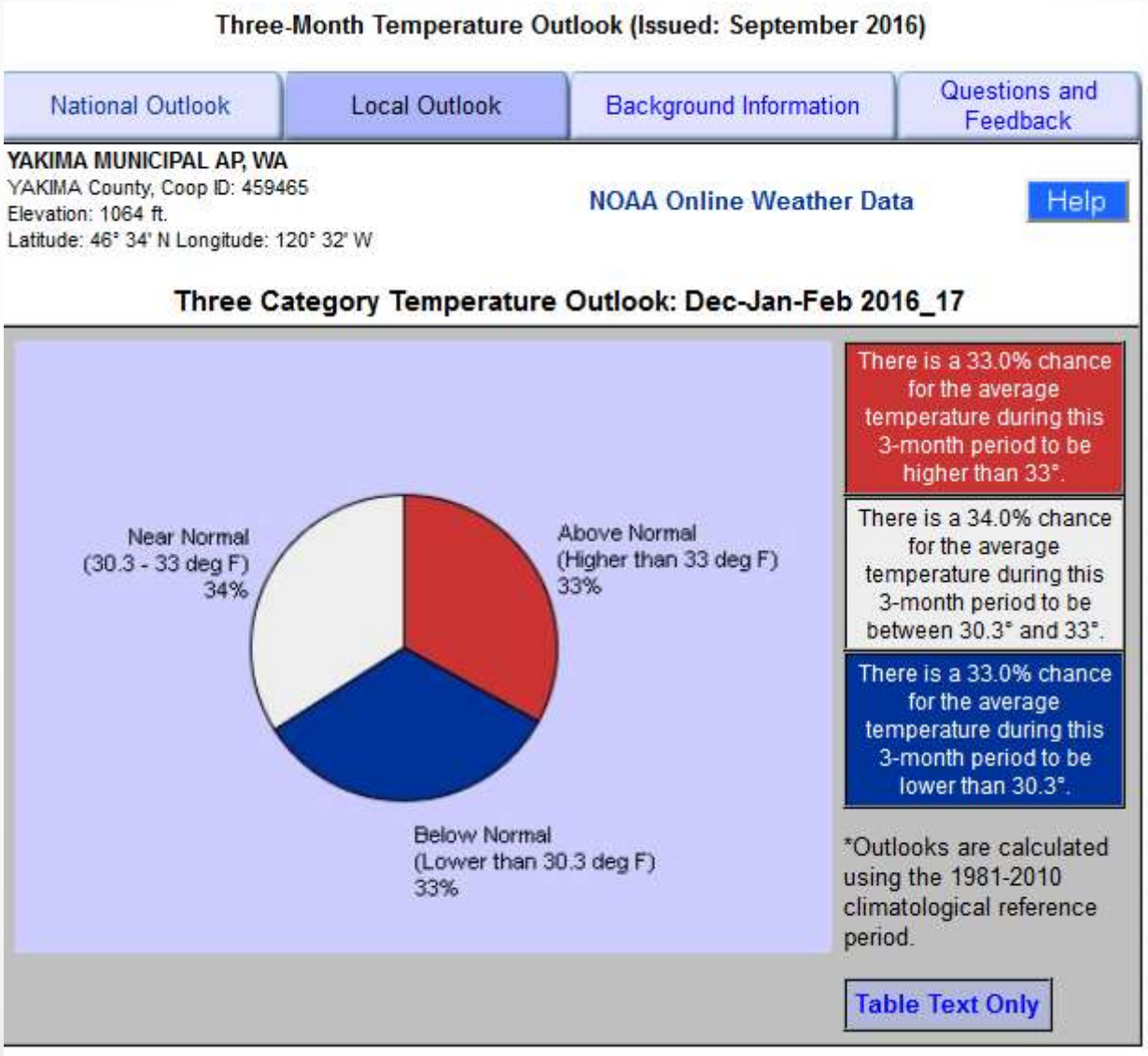


Official CPC Temperature Outlook Dec-Jan-Feb

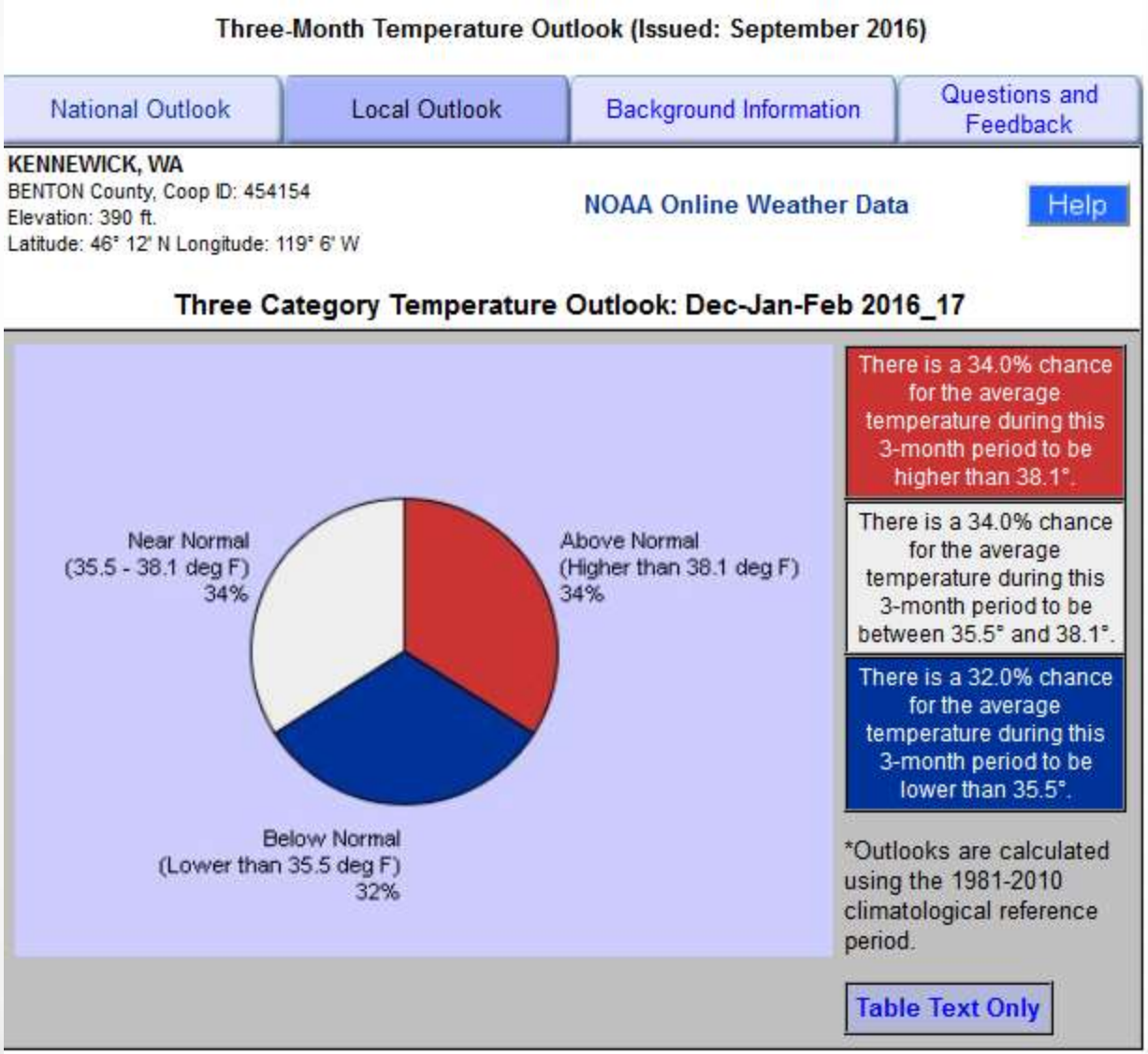


- The Climate Prediction Center, or CPC is calling of equal chances of above, below or near average temperatures through the three month period (Dec-Jan-Feb) over much of the Pacific Northwest. Southeastern Oregon, southern Idaho and the remainder of the Southwest does have higher probabilities for above average temperatures during this time period. Please remember that weekly, and daily temperatures will still fluctuate from above, to below average at times.

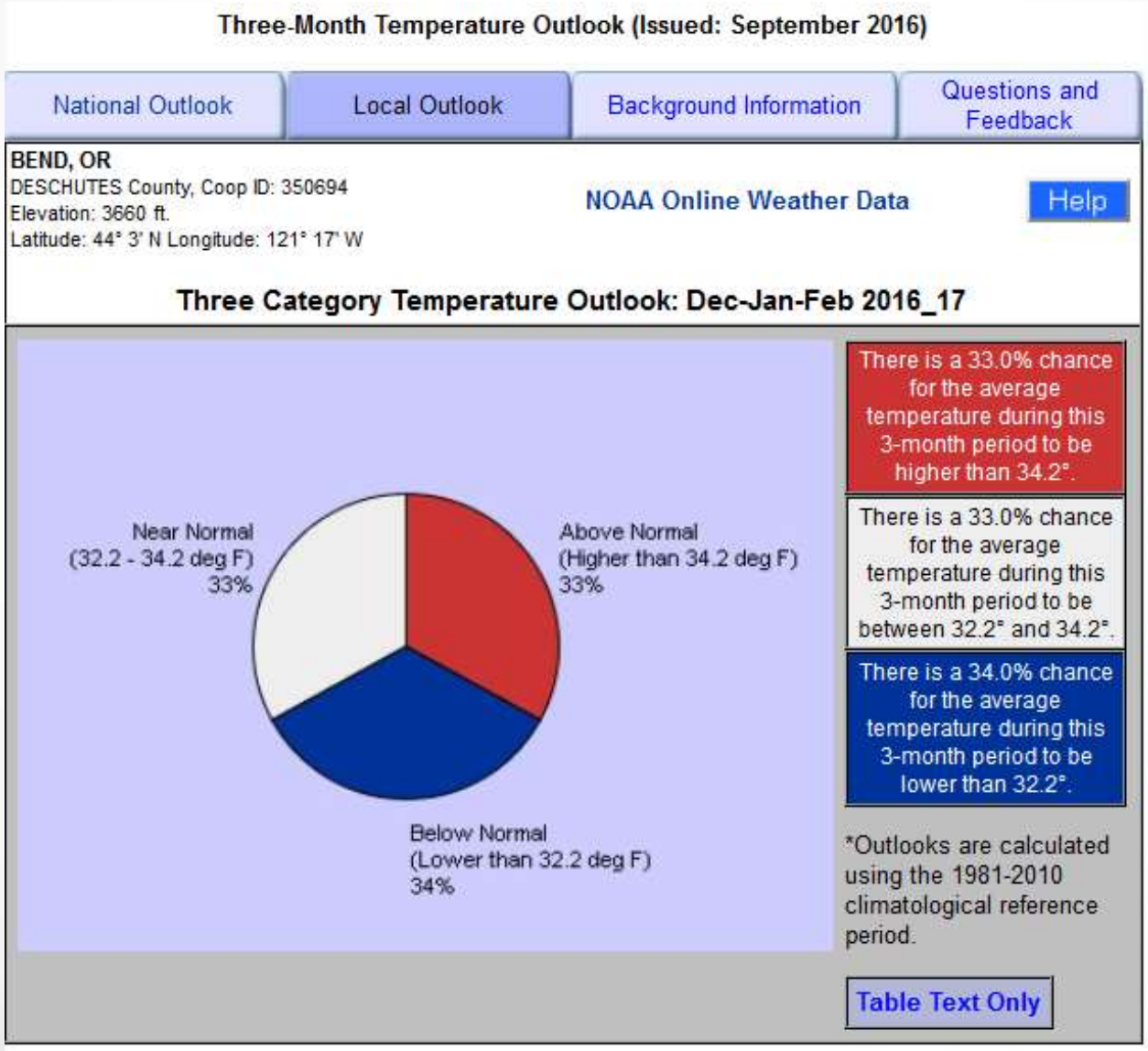
Local 3 Month Temperature Outlook: Yakima, WA



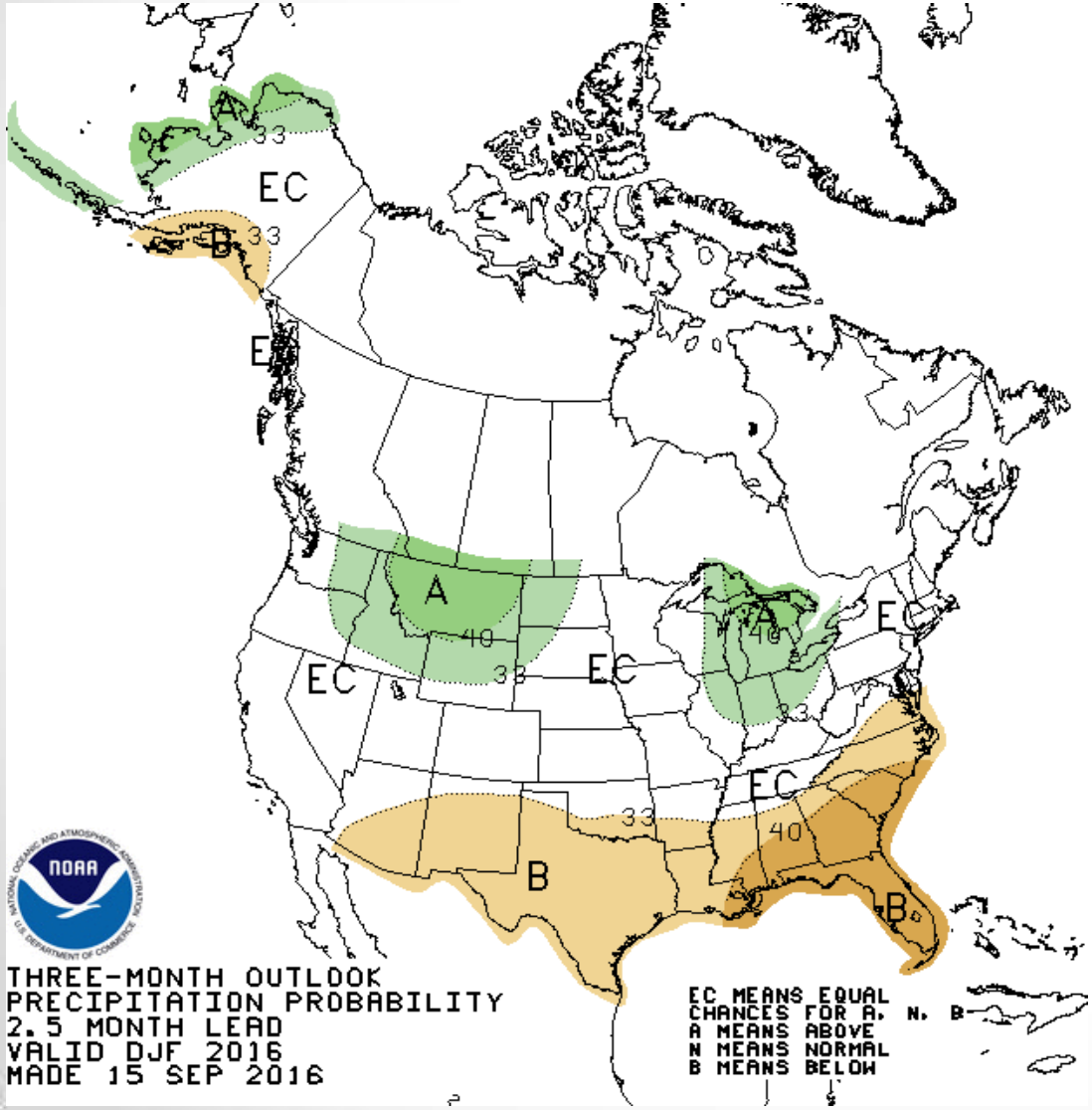
Local 3 Month Temperature Outlook: Kennewick, WA



Local 3 Month Temperature Outlook: Bend, OR



Official CPC Precipitation Outlook Dec-Jan-Feb

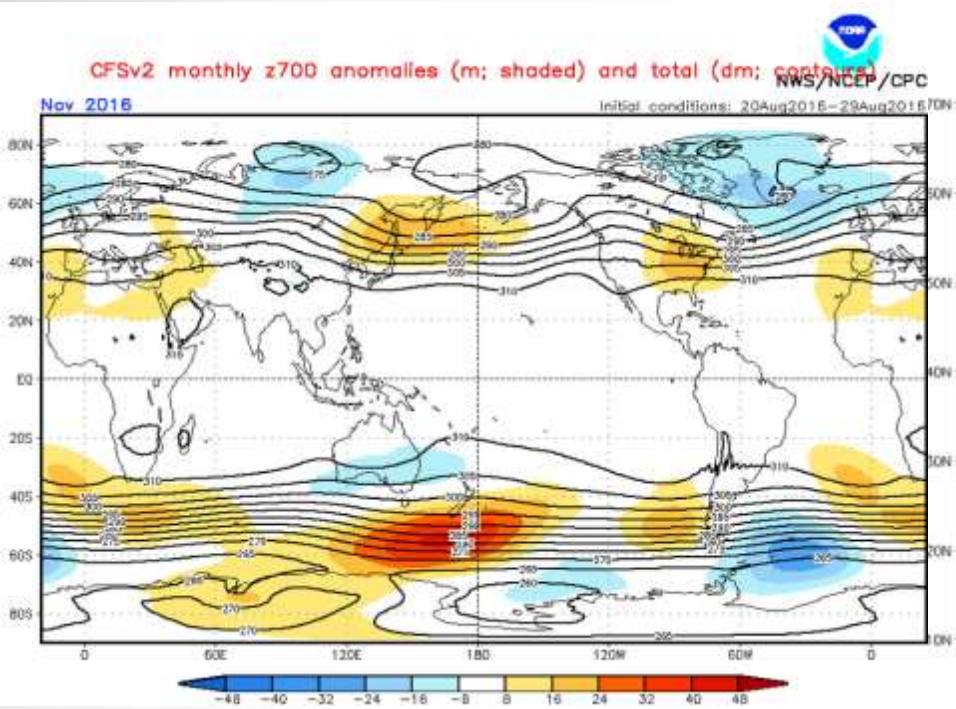


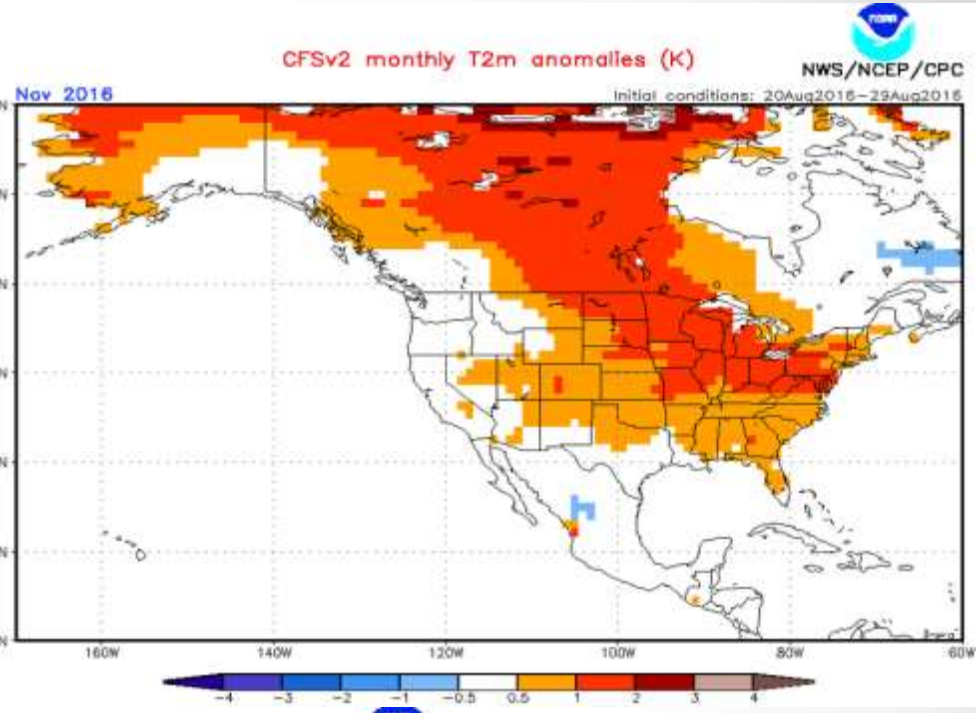
The Climate Prediction Center (CPC) is calling for equal chances for above, below or near average precipitation totals during the three month period across Central Oregon, north to Central and Western Washington. The probabilities are tilted slightly in favor of higher than average precipitation totals over Northeast Oregon, and much of Eastern Washington. The southern tier of the US, from Arizona to Florida has greater odds of below average precipitation totals during this time. Above average precipitation totals are favored in the Great Lakes, where abundant lake effect snow may fall this year.

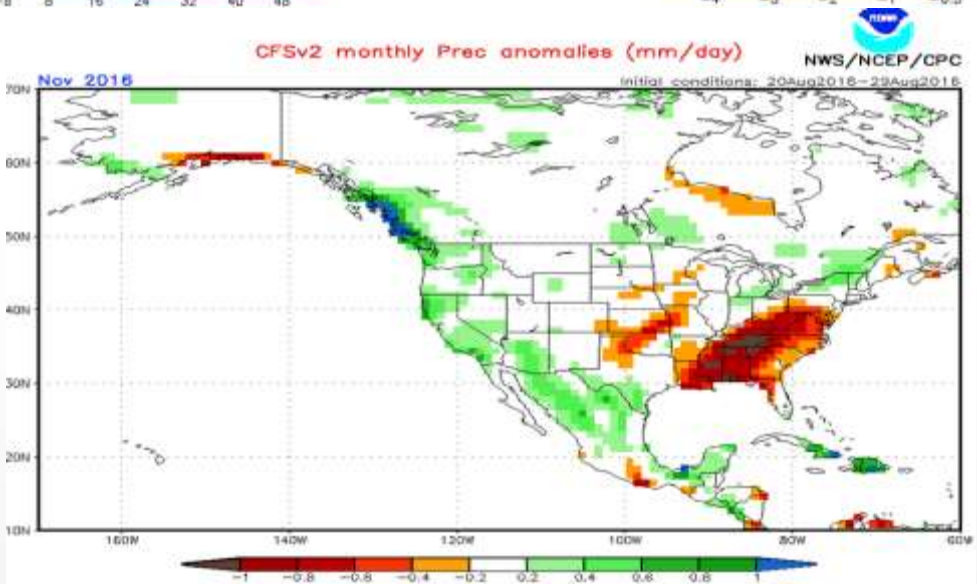
How are these CPC Outlooks Produced?

- Section 1: CFSV2 forecasts for November, December, January, February and the combined three month Dec-Feb forecast.
- Forecasts include 700mb height anomalies (upper left)…forecast surface temperature anomalies (upper right) and precipitation anomalies (bottom)

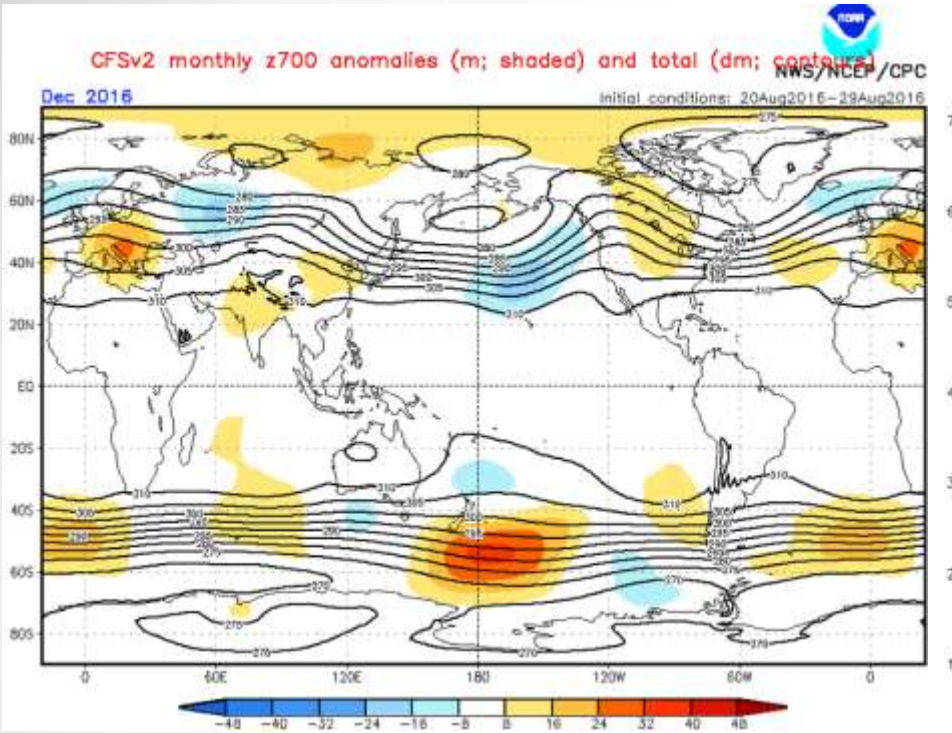
CFSV2 November

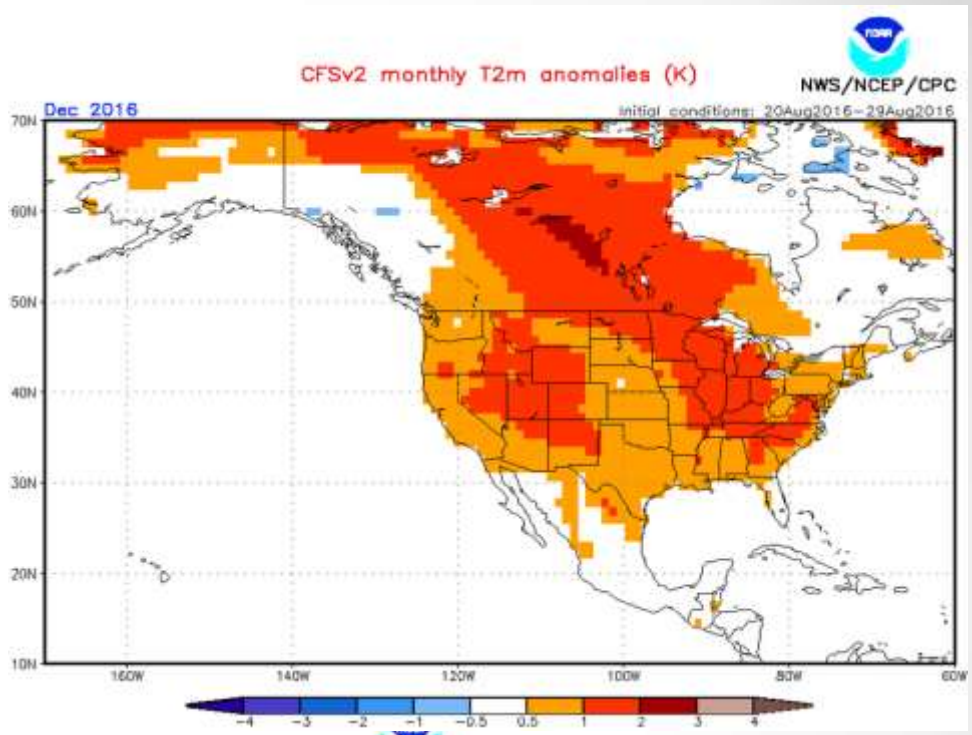


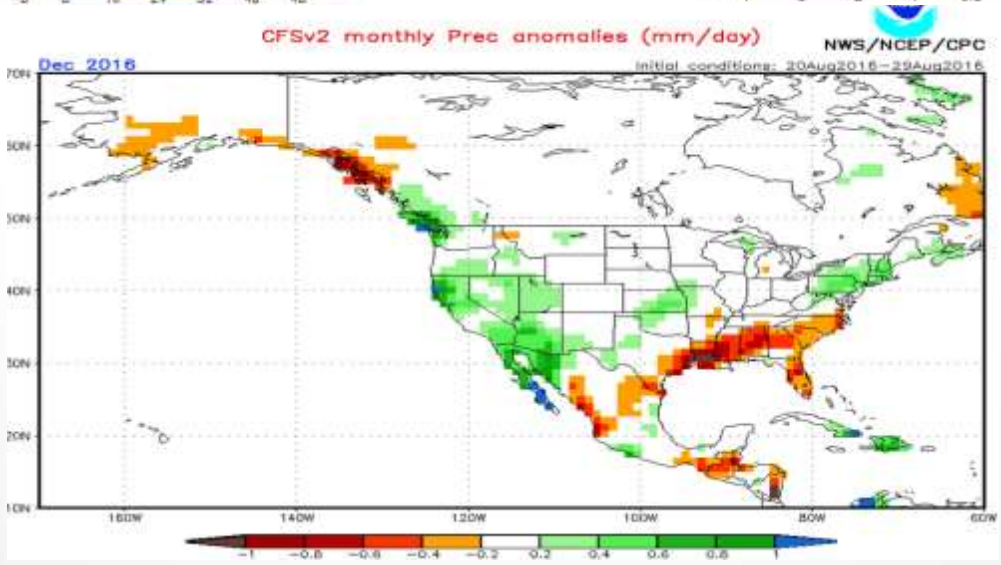




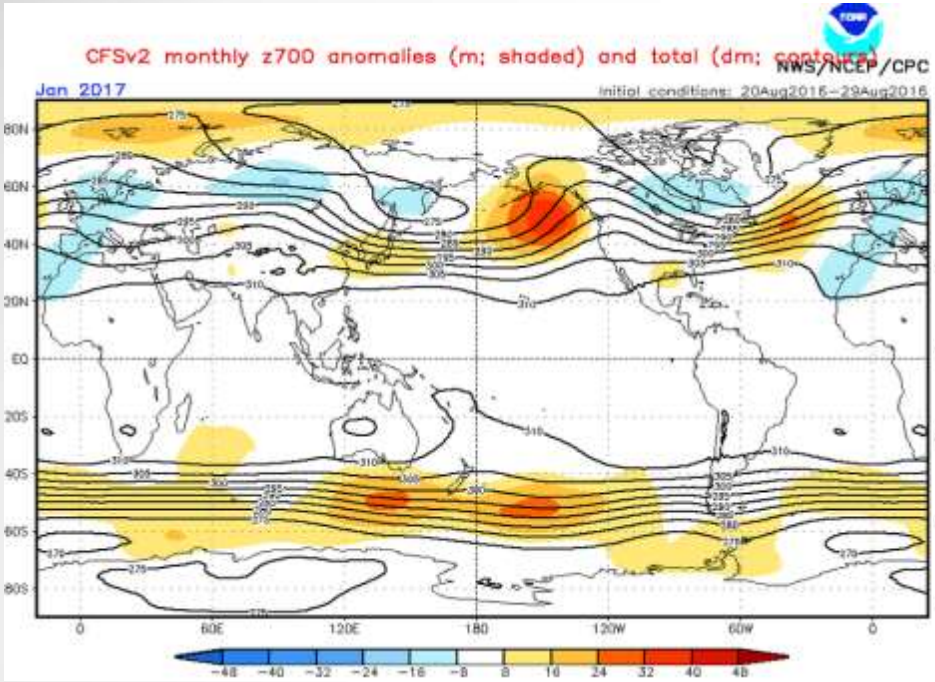
CFSV2 December

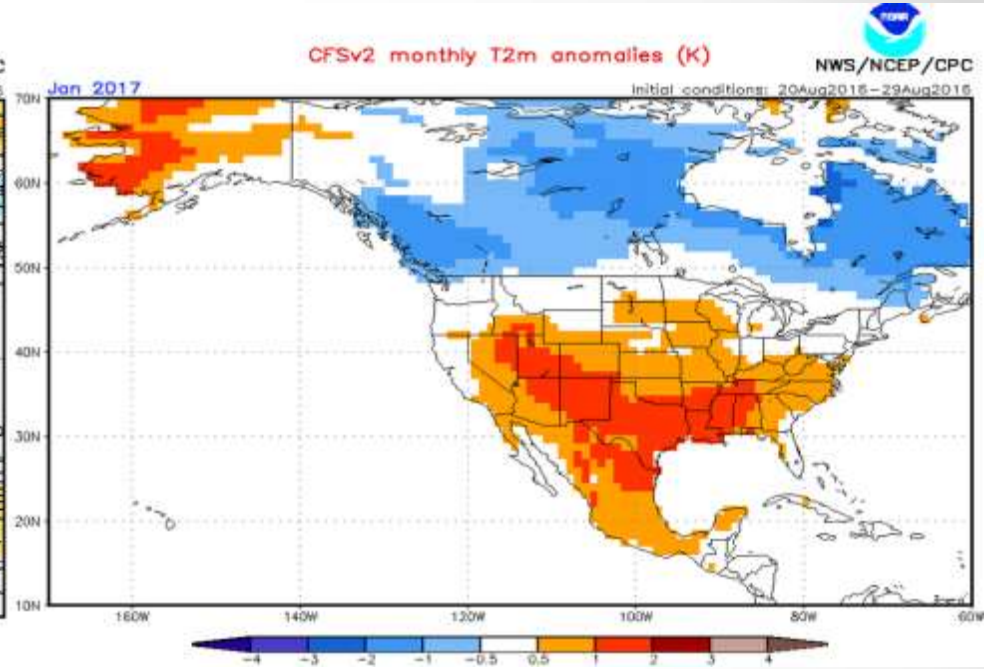


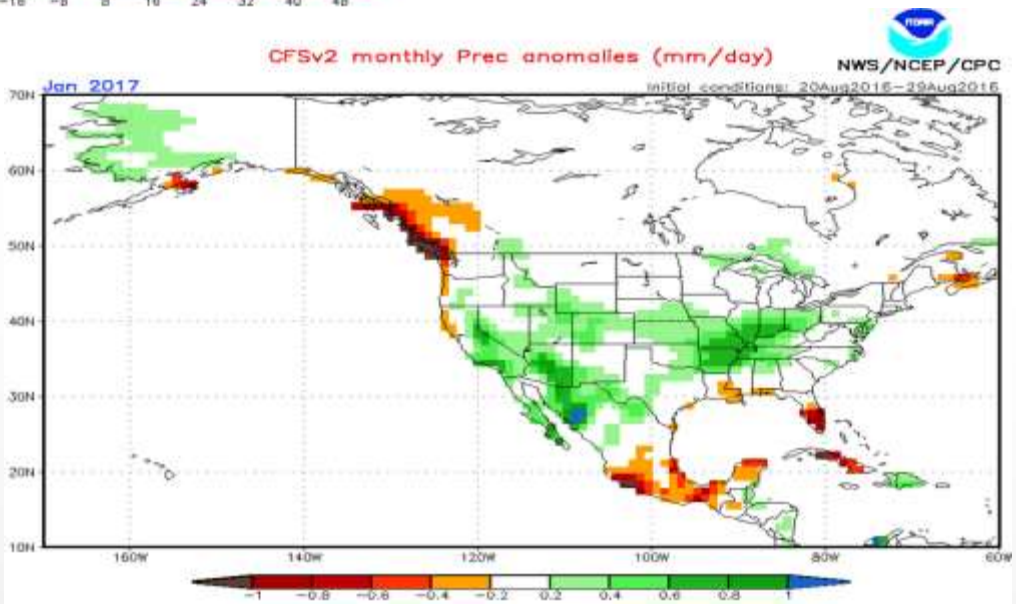




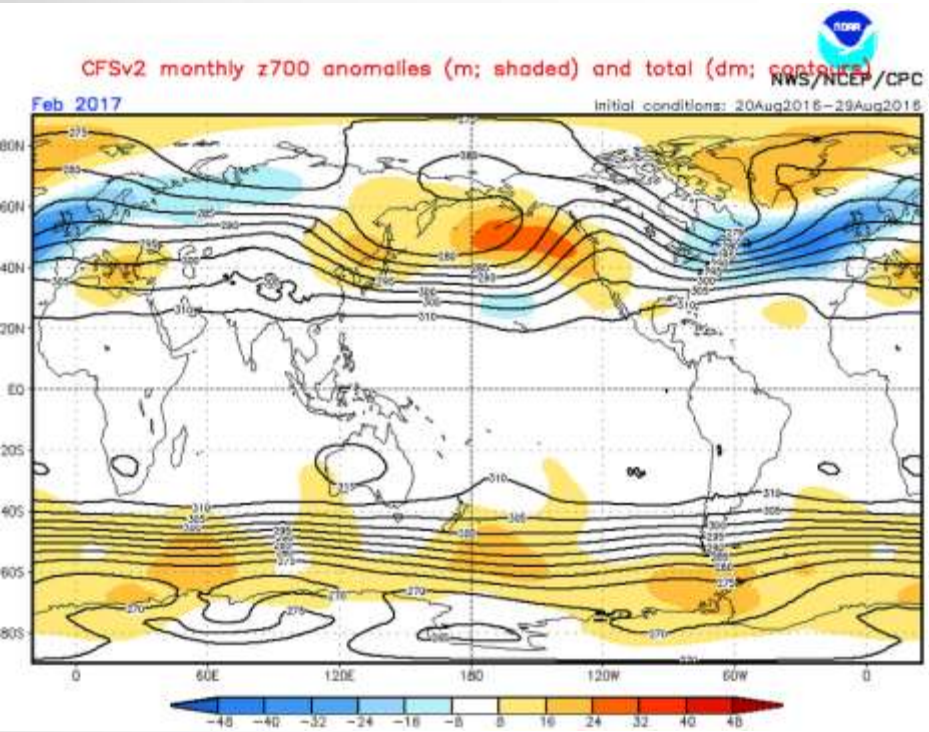
CFSV2 January

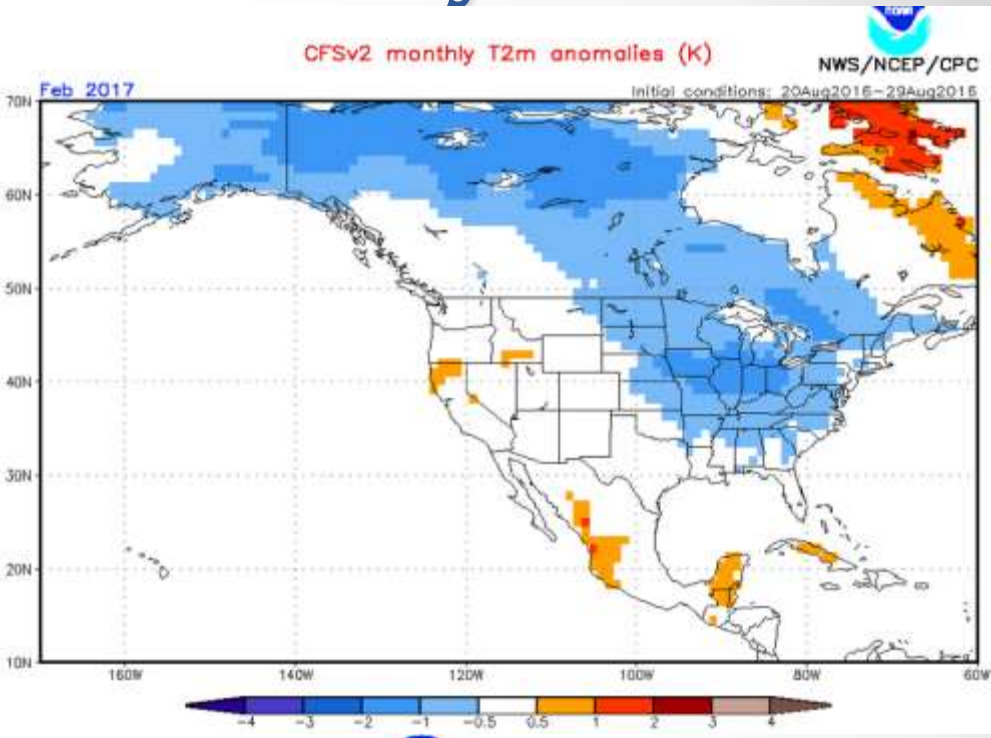


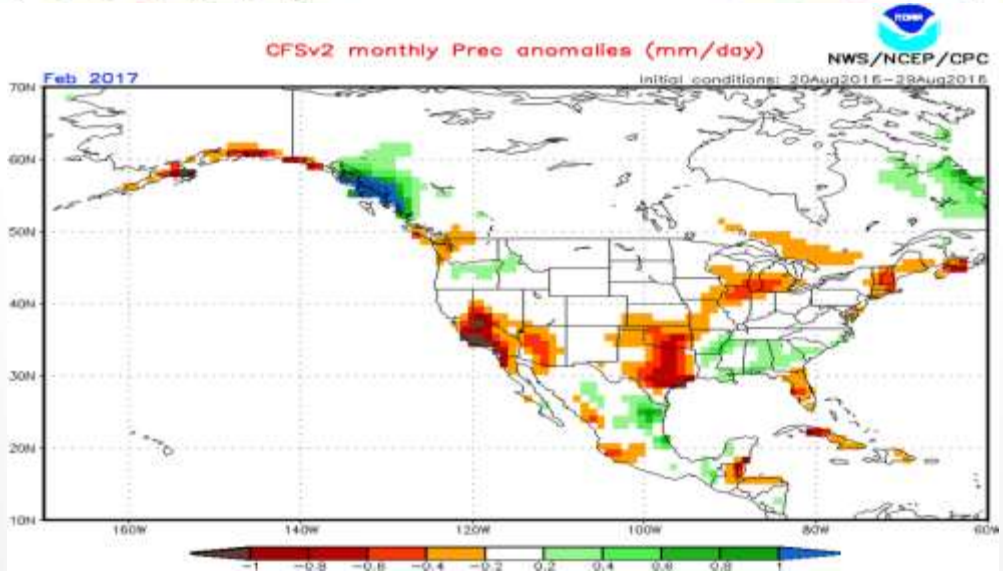




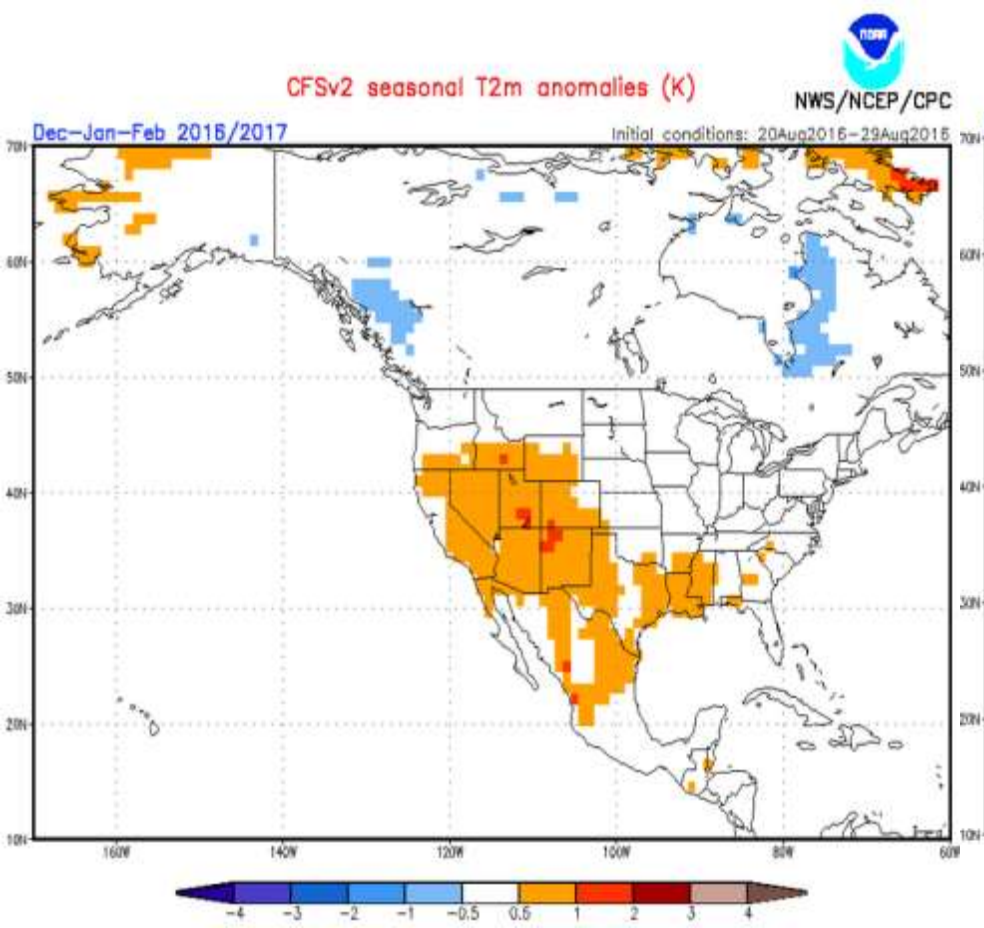
CFSV2 February

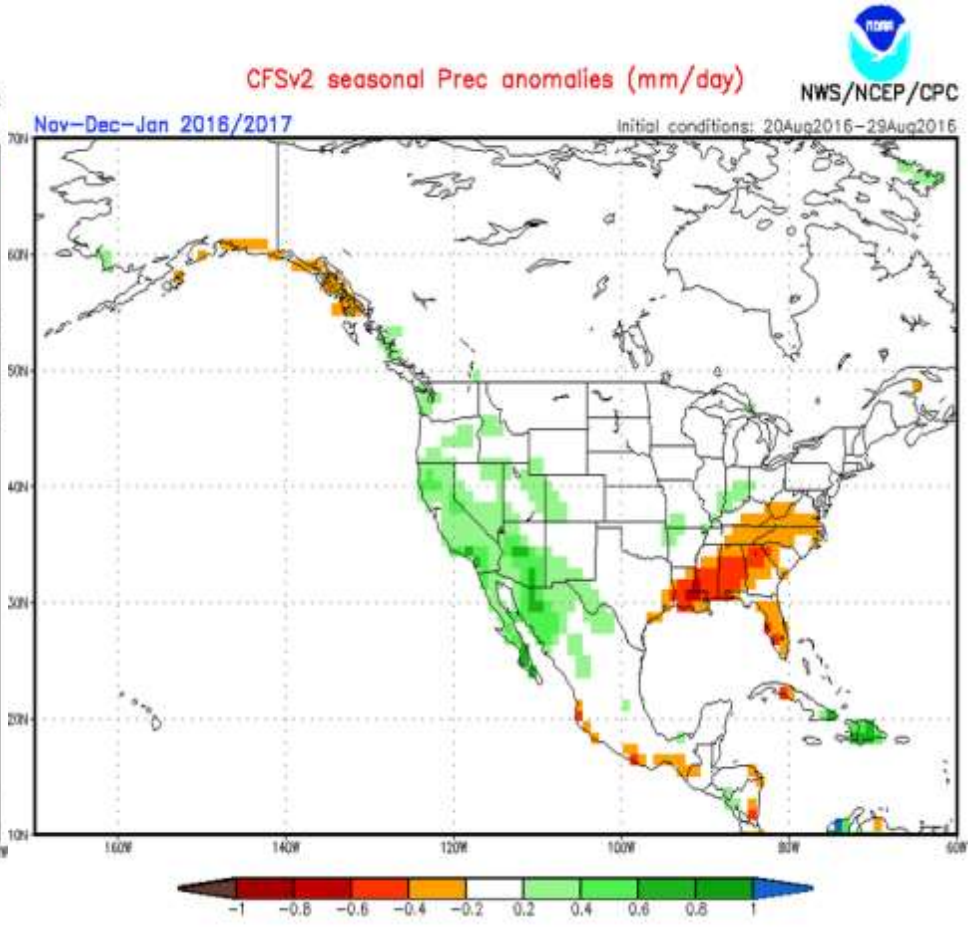




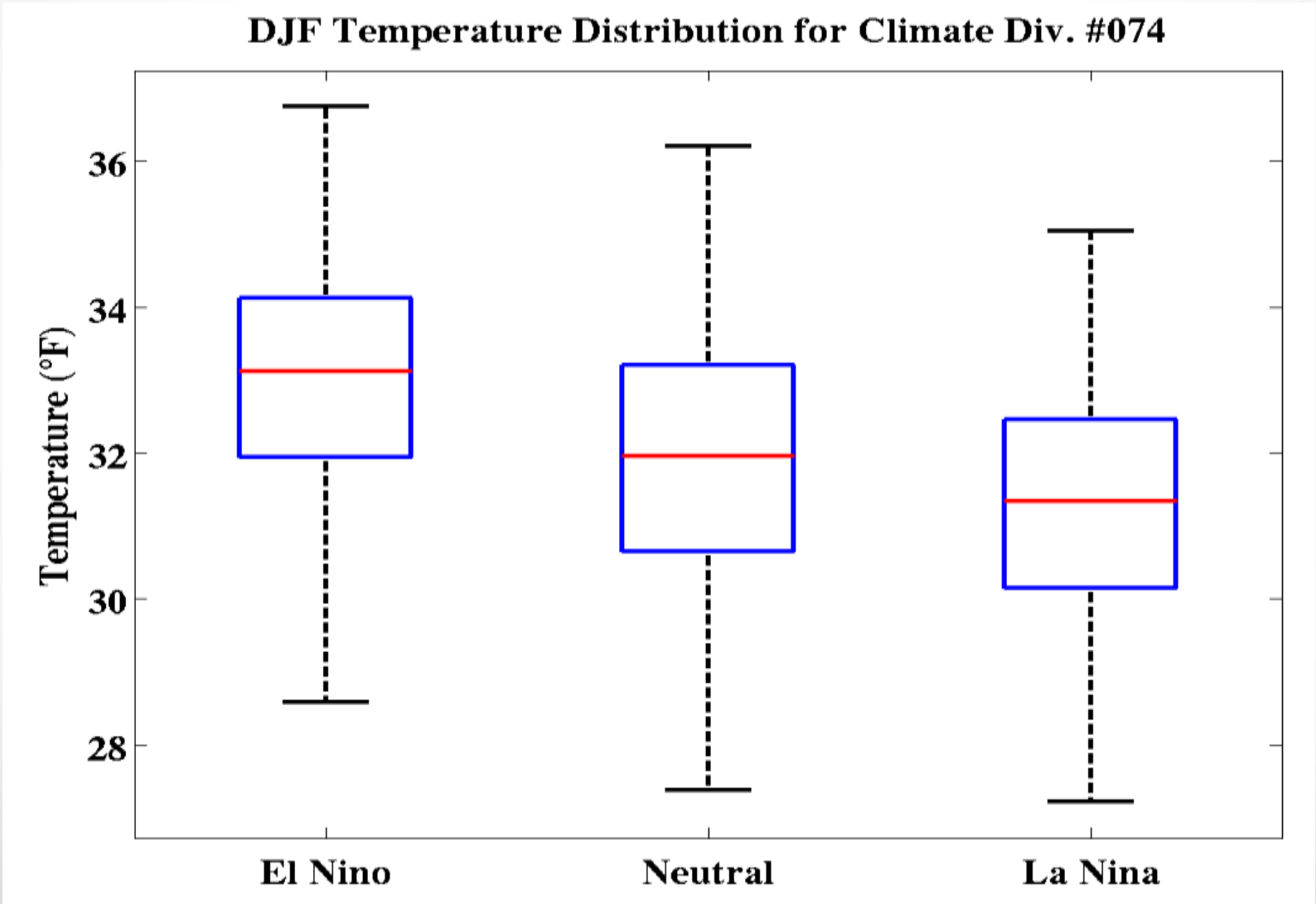


CFSV2 Dec-Jan-Feb

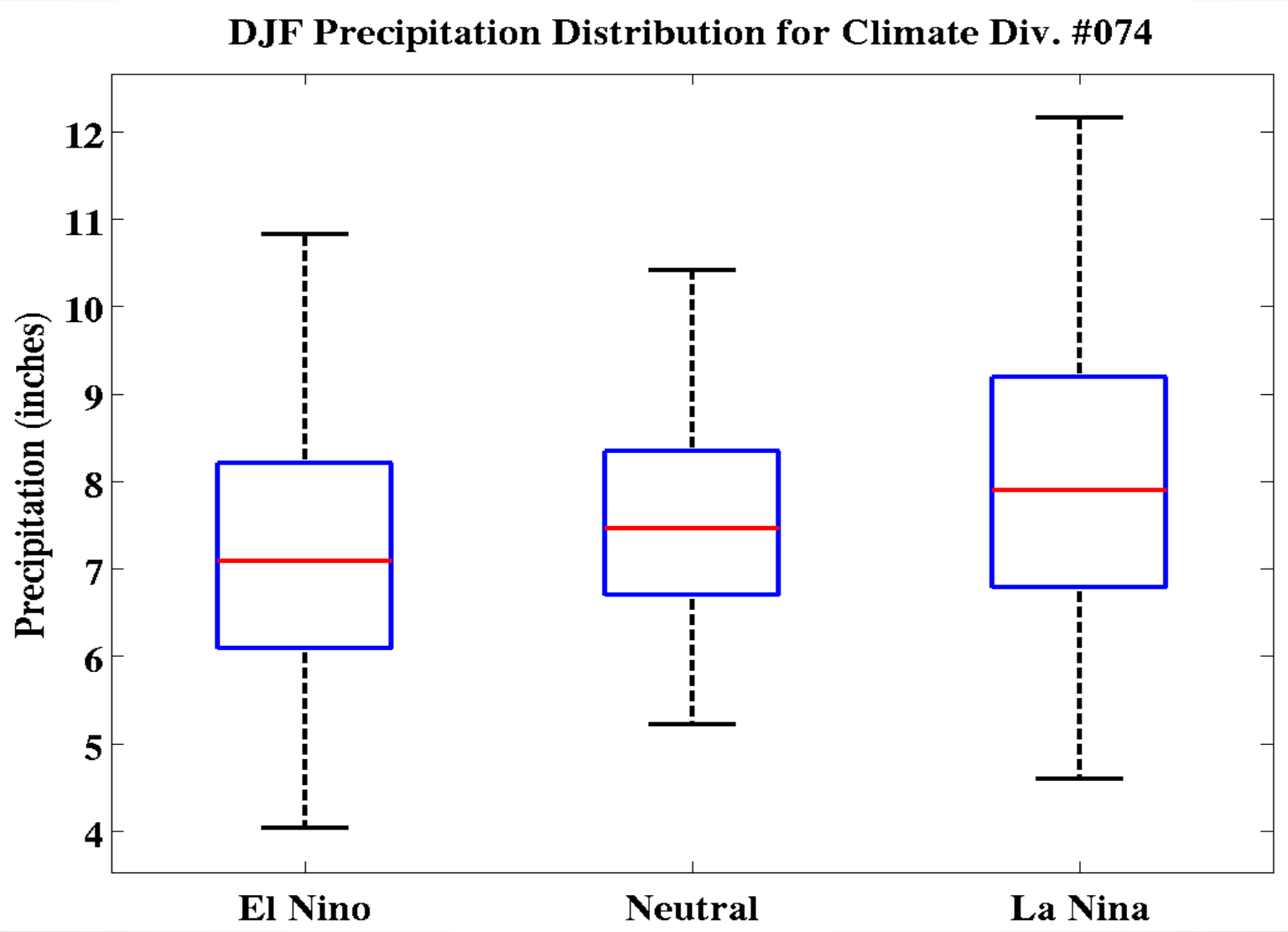




Box & Whiskers Temperature: Columbia Basin



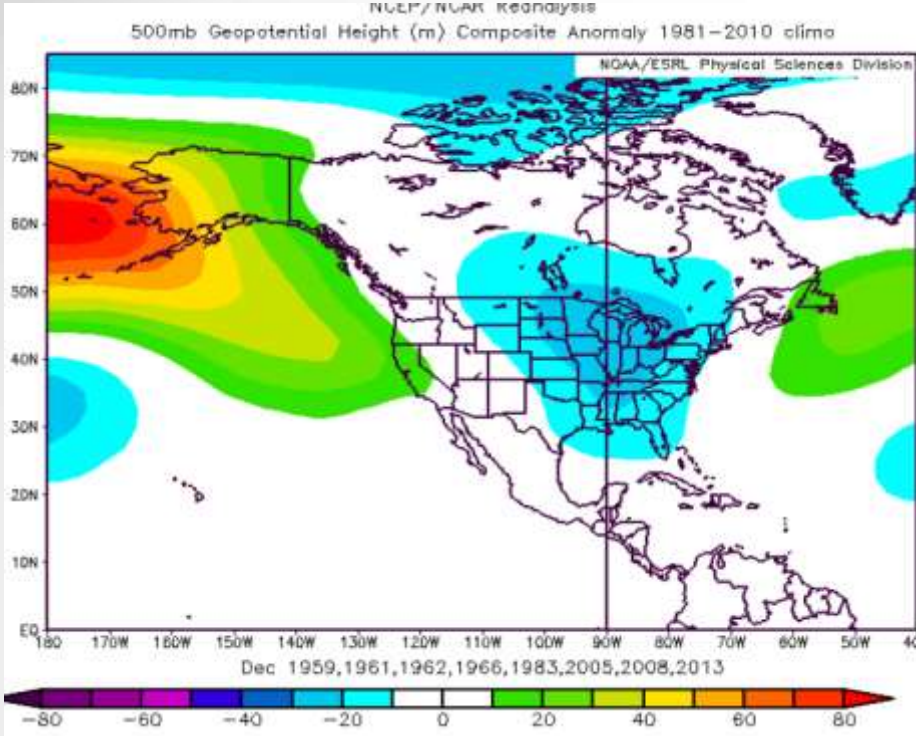
Box & Whiskers Precipitation: Columbia Basin

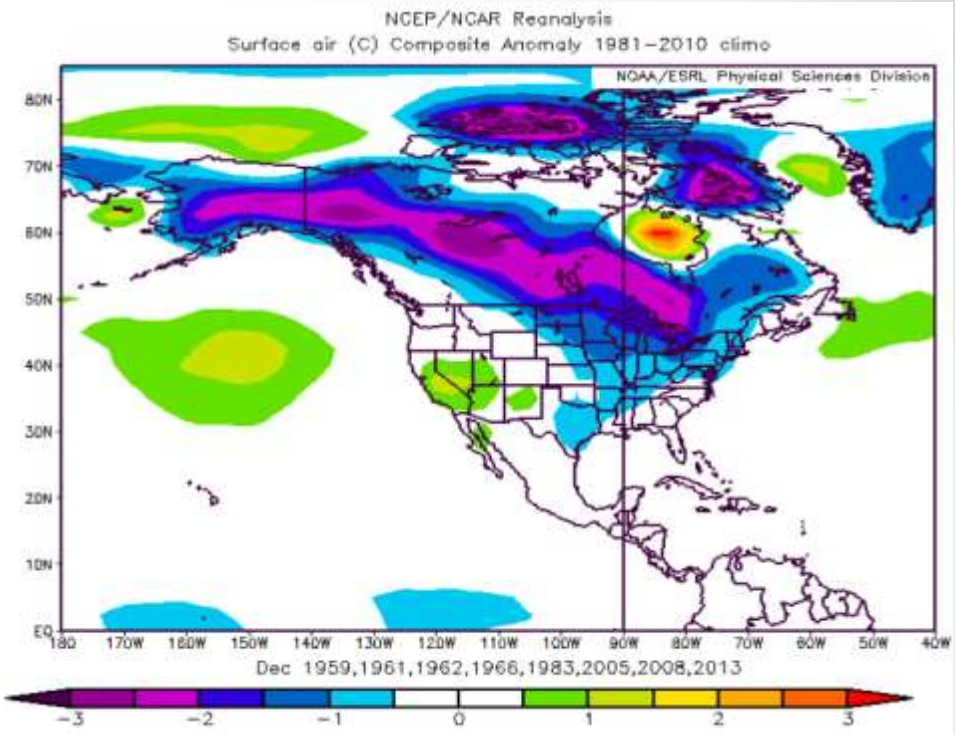


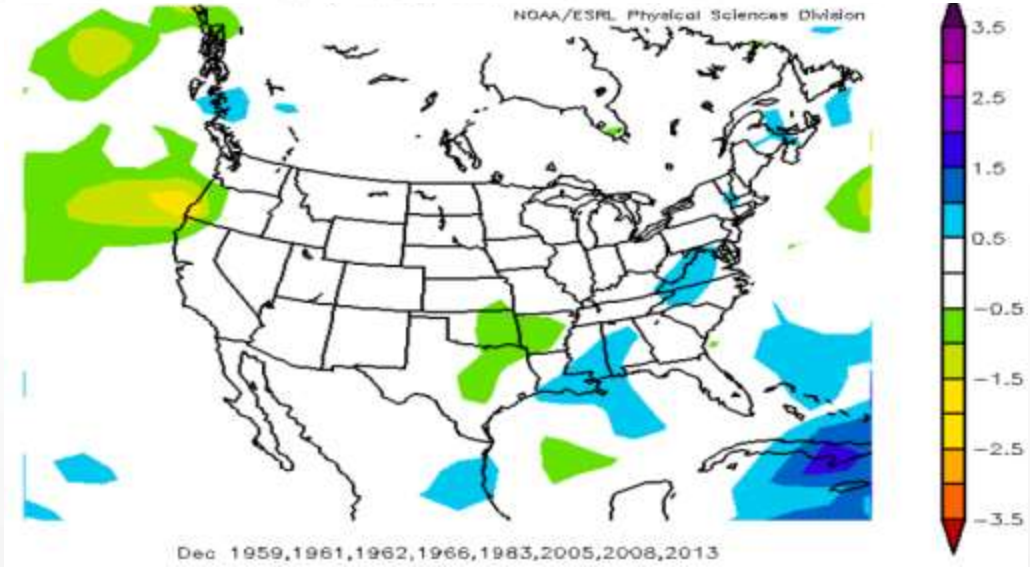
Next: Analog Year Plots

- 500mb Height Anomalies
- Surface Temperature Anomalies
- Precipitation Anomalies
- Average of past years that also had a transition from a strong El Nino to very weak La Nina or neutral state in the tropical Pacific (8 years total)

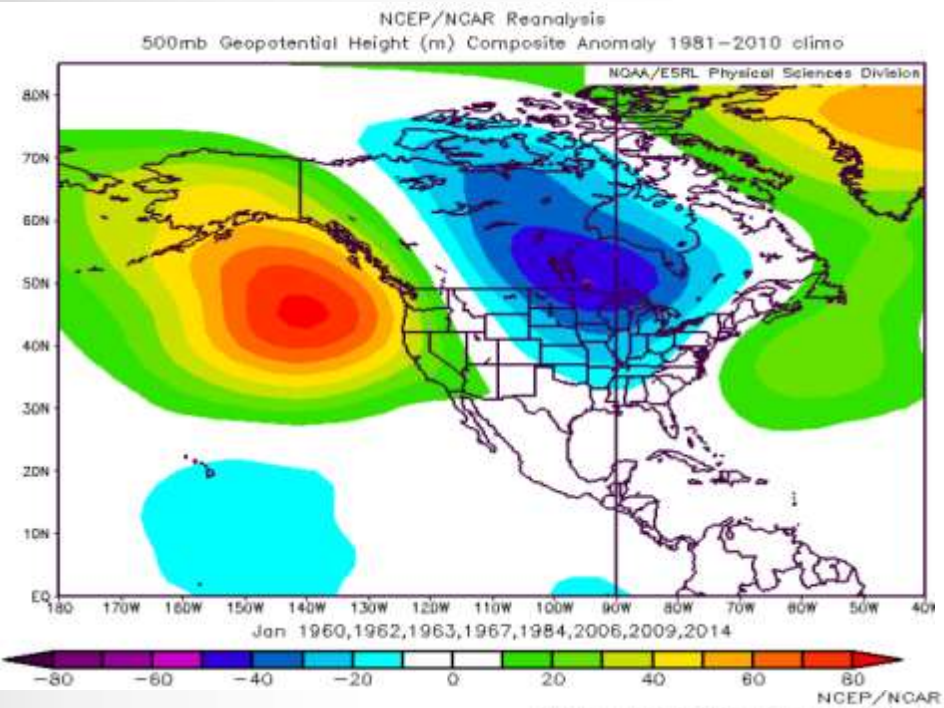
December

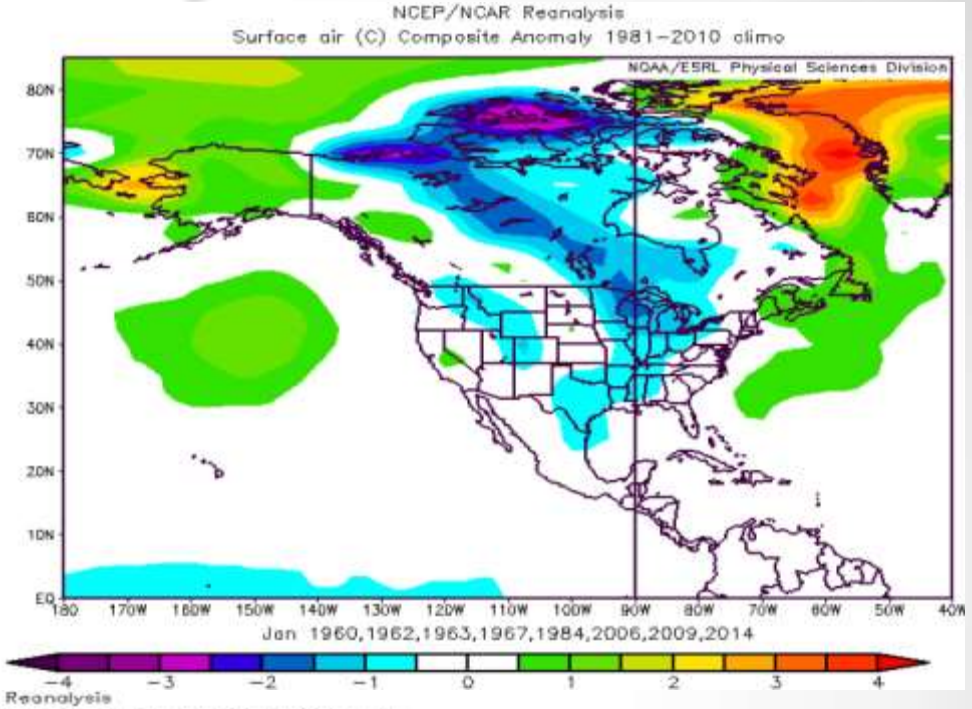

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Dec 1959,1961,1962,1966,1983,2005,2008,2013
-80 -60 -40 -20 0 20 40 60 80

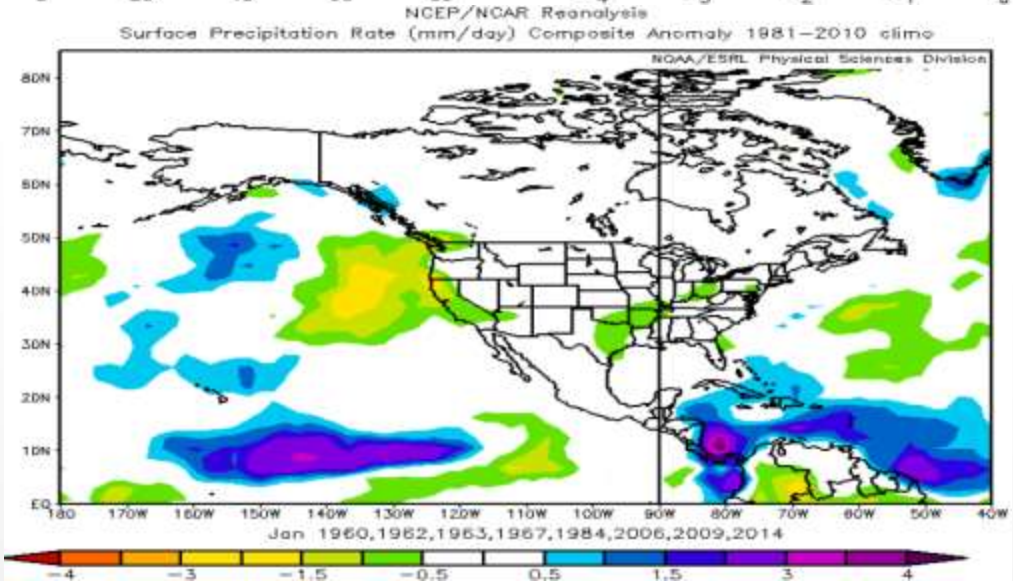

NCEP/NCAR Reanalysis
Surface air (C) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Dec 1959,1961,1962,1966,1983,2005,2008,2013
-3 -2 -1 0 1 2 3


NOAA/ESRL Physical Sciences Division
Dec 1959,1961,1962,1966,1983,2005,2008,2013
3.5
2.5
1.5
0.5
-0.5
-1.5
-2.5
-3.5

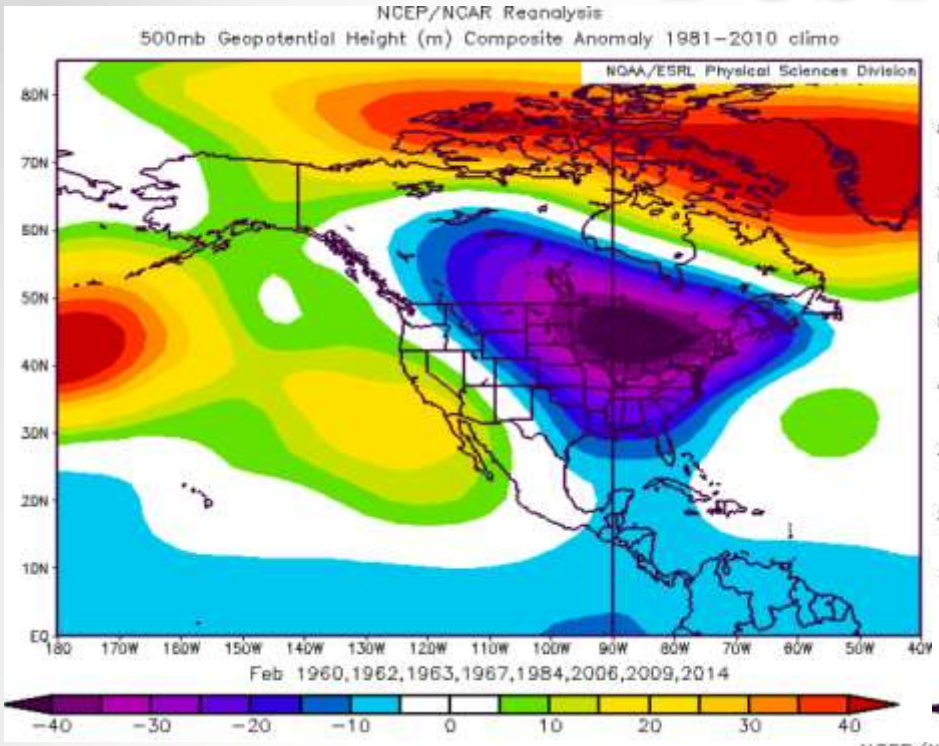
January

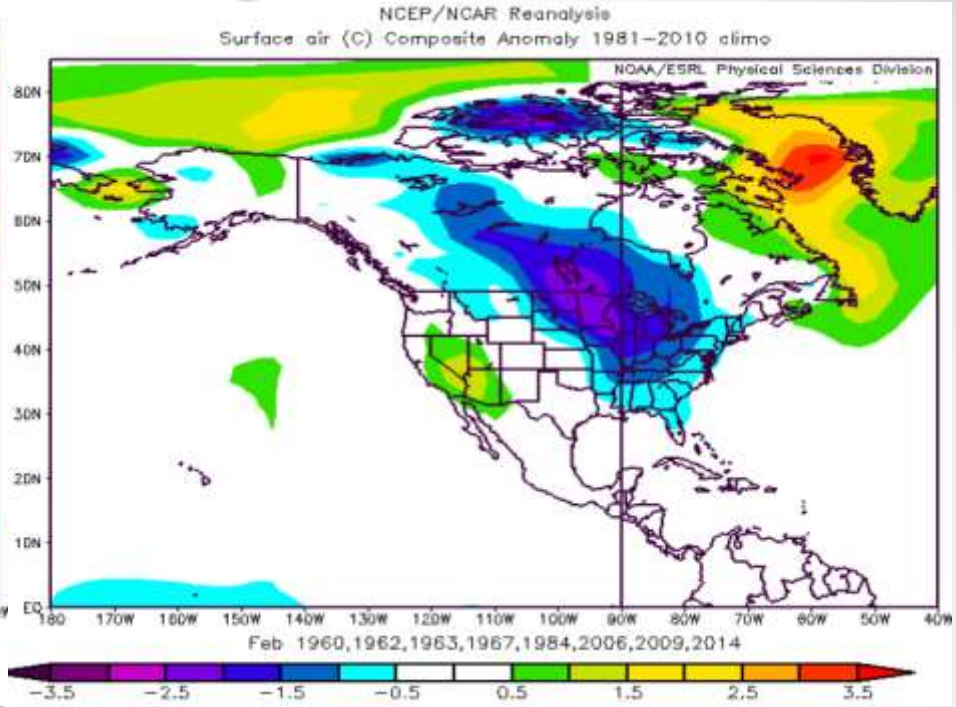

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Jan 1960,1962,1963,1967,1984,2006,2009,2014
-80 -60 -40 -20 0 20 40 60 80

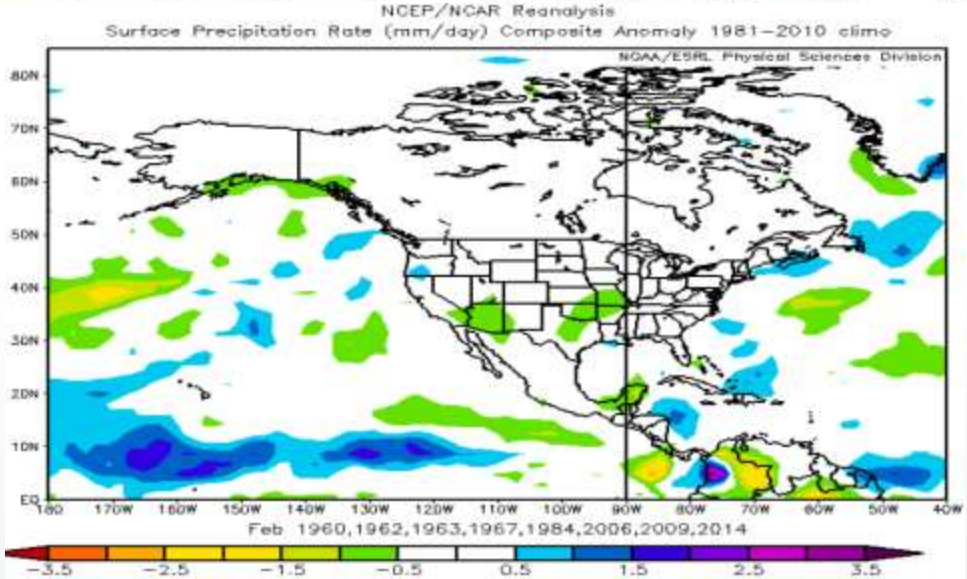

NCEP/NCAR Reanalysis
Surface air (C) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Jan 1960,1962,1963,1967,1984,2006,2009,2014
-4 -3 -2 -1 0 1 2 3 4


NCEP/NCAR Reanalysis
Surface Precipitation Rate (mm/day) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Jan 1960,1962,1963,1967,1984,2006,2009,2014
-4 -3 -1.5 -0.5 0.5 1.5 3 4

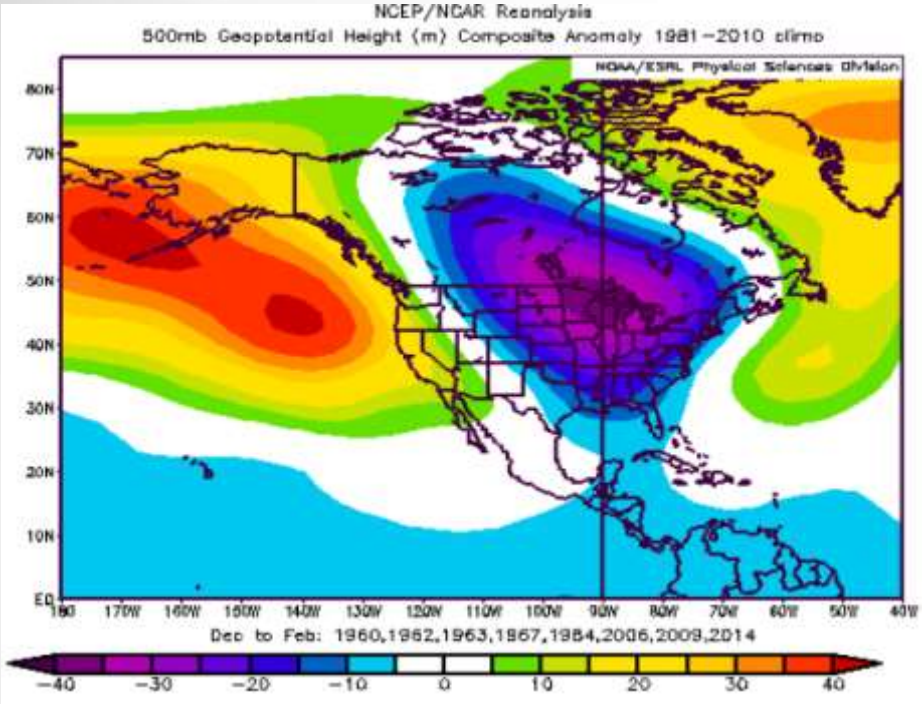
February

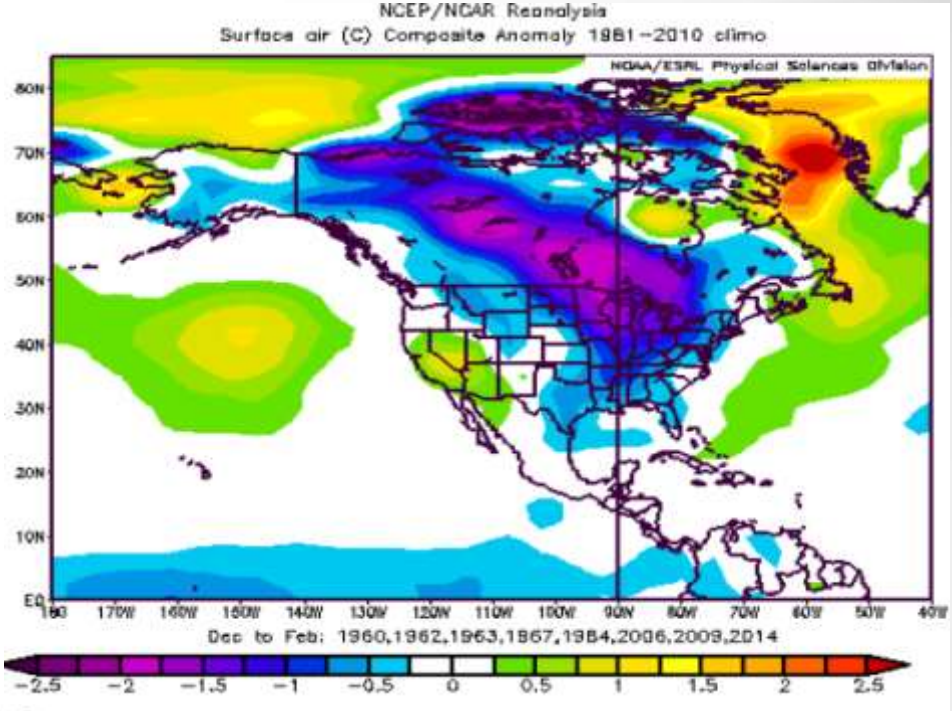

NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Feb 1960,1962,1963,1967,1984,2006,2009,2014
-40 -30 -20 -10 0 10 20 30 40

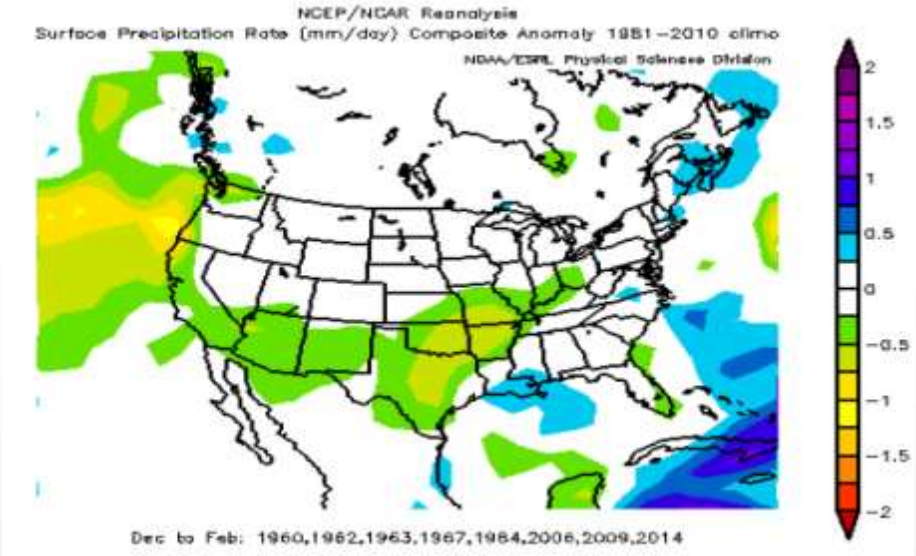

NCEP/NCAR Reanalysis
Surface air (C) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Feb 1960,1962,1963,1967,1984,2006,2009,2014
-3.5 -2.5 -1.5 -0.5 0.5 1.5 2.5 3.5


NCEP/NCAR Reanalysis
Surface Precipitation Rate (mm/day) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Feb 1960,1962,1963,1967,1984,2006,2009,2014
-3.5 -2.5 -1.5 -0.5 0.5 1.5 2.5 3.5

Dec-Jan-Feb


NCEP/NCAR Reanalysis
500mb Geopotential Height (m) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Dec to Feb: 1960,1962,1963,1967,1984,2006,2009,2014
-40 -30 -20 -10 0 10 20 30 40


NCEP/NCAR Reanalysis
Surface air (C) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Dec to Feb: 1960,1962,1963,1967,1984,2006,2009,2014
-2.5 -2 -1.5 -1 -0.5 0 0.5 1 1.5 2 2.5


NCEP/NCAR Reanalysis
Surface Precipitation Rate (mm/day) Composite Anomaly 1981-2010 climo
NOAA/ESRL Physical Sciences Division
Dec to Feb: 1960,1962,1963,1967,1984,2006,2009,2014
2 1.5 1 0.5 0 -0.5 -1 -1.5 -2

Summary

- There can be other factors not mentioned in this presentation that affect our winter weather in the Pacific Northwest (PDO, PNA, AO and even NAO indices). Often times, on a more of a weekly or bi-weekly time scale.

- The weather patterns throughout the winter months will undoubtedly fluctuate and change. Bringing periods of above, below and near normal temperatures and precipitation.

- The official Climate Prediction Center(CPC) outlooks for December – February are calling for equal chances of above, below or near average temperatures for much of the area. Meanwhile precipitation outlooks for the same period have the odds slightly tilted toward above average precipitation totals, especially over Northeast Oregon, and much of Eastern Washington.